CHAPTER 1

DECISION-MAKING FOR FLOOD-THREATENED PROPERTIES

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Abstract: When a flood threatens an existing property such as a dwelling or business, the owner must decide what action to take to minimise the dangers, damage, and inconvenience. Extensive material is available related to options for managing the flood vulnerability of individual properties before, during, and after floods. These sources offer comprehensive information on the possibilities which exist but rarely develop tools for determining which option might be the most appropriate in given circumstances.

This chapter discusses the need for, and provides some simple tools for, understanding decision-making for flood-threatened properties. The focus is on individual properties which might be threatened by floodwater, imminently (existing properties) or in the future (existing or planned properties). The decisions addressed are:

• Emphasising dry or wet flood resistance: to seal or not to seal an individual property?
• Reducing recovery duration: should property components be removed from the property before the flood, replaced after the flood, or dried and cleaned after the flood?
• Implementing resilient reinstatement: resilient reinstatement should be a social, not property-orientated, solution.

Then, the implications for the wider community context are elaborated.

The U.K. is used as the main case study. The discussion helps to consolidate available information in order to produce useful analytical approaches which any property owner could use. The key is to make each property owner their own expert rather than forcing them to rely on experts.

Keywords: resilient reinstatement, sealing, flood damage, property vulnerability, decision making, floods, U.K., built environment

1. INTRODUCTION

When a flood threatens an existing property such as a dwelling or business, the owner must decide what actions to take to minimise the dangers, damage, and inconvenience. Extensive material is available related to options for managing the

- Dry flood proofing a property, i.e. trying to keep floodwater out such as by sealing openings or raising the property (which, realistically, is increasing flood resistance rather than “flood proofing”).
- Wet flood proofing a property, i.e. permitting floodwater to enter but minimising damage such as by using flood-resistant materials and finishes (which, again, is increasing flood resistance rather than “flood proofing”).
- Relocating a property or community.
- Designing a community to prevent floods impacting properties, such as drainage patterns which discourage surface water ponding near properties and street layout which prevents large water velocities impacting properties.
- Otherwise altering the flood hazard parameters which affect properties and communities through:
  - structural (hard) flood defences such as dams, levees, and walls; and
  - non-structural (soft) flood defences such as wetlands and parks.
- Efficient and effective return of the property to a pre-flood, or better, state after the flood event.

Much of this material emphasises that buildings must do more than resist or avoid floods. Their adequate recovery and subsequent prolonged resilience are essential for their longevity and, most importantly, the recovery, resilience, and longevity of the occupants and the community.

These sources offer comprehensive information on the options which exist but they often do not develop tools for determining which option might be the most appropriate in given circumstances. As with many decision-making dilemmas, defining the most appropriate option depends on the criteria being considered and the most important criteria according to the judge. This chapter illustrates potential analytical strategies. Each user would then need to apply their own perspective to resolve their own decision-making dilemma.

Because this chapter’s approach is scientific, it might be unsuitable for many property owners. Instead, the core audience is likely to be policy makers and technical and scientific support staff who prepare, communicate, and disseminate the information to property owners. Irrespective, it would be hoped that the tools and methods presented here might be of sufficient interest and importance to motivate property owners into acquiring the relatively low level of scientific understanding necessary for them to appreciate the background, wider context, and relevance of the material presented. As implied already, the most appropriate option in a decision-making dilemma often depends on the decision-maker’s perspective. Thus, a decision-maker should ensure that they fully understand the decision’s context, the option, and their own perspective.